7535 Little River Turnpike, Suite 100
Annandale, Virginia 22003-2937
www.novaregion.org

Voice: 703-642-0700
Fax: 703-642-5077
TDD: 703-642-8061

Northern Virginia Regional Commission

October 26, 2000
For immediate release

PRESS RELEASE

Contact:
Don Waye, (703) 642-4628

Four Mile Run Bacteria Sources Determined

DNA Analysis Provides First-Ever Glimpse of Urban Stream Microbes

A significant new study released by the Northern Virginia Regional Commission and Virginia Tech reveals answers about where high levels of bacteria in Four Mile Run come from. This study found: 1) without regard to specific host animals, *E. coli* bacteria seem to regrow, through cloning, within storm drains and stream sediments, which in turn perpetuate high bacteria levels throughout Four Mile Run; 2) waterfowl contribute over one-third (37%) of the bacteria that could be matched; 3) humans and dogs together account for over one-quarter (26%) of the matched bacteria; 4) bacteria from humans is localized; 5) raccoon account for 15% of the matches, with deer and rat also contributing bacteria.

The study represents the first application of modern molecular genetic tools to track down sources of waterborne *E. coli* in the metropolitan DC region. The research was jointly conducted by the Northern Virginia Regional Commission (NVRC) and Virginia Tech. Funding partners included the Virginia Department of Environmental Quality as well as the four localities that share the watershed—Arlington, Alexandria, Falls Church and Fairfax County. Since bacteria levels in Four Mile Run are typical of many urban streams, the study has implications well beyond Northern Virginia.

Don Waye, who coordinated the research effort for NVRC, noted, "We hoped this effort would tell us which animals are culpable. But it also suggests that our storm drains are incubating bacteria far beyond what animals alone could contribute." As the watershed has urbanized over the past century, storm drains have replaced 35 miles of headwater streams, leaving only 16 miles of open stream remaining.

Virginia Tech's Dr. George Simmons, who pioneered the sleuthing technique and applied it to Four Mile Run, added, "The stream's consistently high bacteria levels indicate an ecosystem that is out of balance and unhealthy. It may be that high nutrient loads from urban runoff are preventing the usual assemblage of microfauna from occurring, which would normally feed on the bacteria."

Additional information, including a copy of the study's full report* and an interactive graphical presentation, is available online at <www.novaregion.org>.

A short presentation and press kit will be provided at the Northern Virginia Regional Commission's meeting on October 26, at 8:00 p.m.

---

*Simmons, et al., September 2000, Estimating Nonpoint Fecal Coliform Sources in Northern Virginia's Four Mile Run Watershed.